

### Abstract

A novel process and apparatus for power generation from biomass and other carbonaceous feedstocks are provided. The process integrates a pulse combustor steam reformer with a gas turbine to generate electricity such that (i) efficiency is higher than those of conventional and current advanced power systems, (ii) emissions are lower than those proposed in the new environmental regulations, and (iii) performance is comparable to that of combined cycle, even though a bottoming cycle is not included here. The pulse combustor steam reformer generates a hydrogen-rich, medium-Btu fuel gas that is fired in a gas turbine to generate electricity. The apparatus may be configured to produce only power or combined heat and power.